

Application No. 10/694,960

AMENDMENT AND RESPONSE AFTER FINAL REJECTION dated March 26, 2007

Reply to Office Action of January 3, 2007

**REMARKS**

After entry of the present amendment, claims 1-7 and 27-42 are presently pending in the application. Claims 1-7 and 27-32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over US 5,750,177 ("Yee"). Claims 33-42 are newly added claims. Applicants respectfully request reconsideration and allowance in view of the discussion presented herein.

**I. Claims 1-7 and 27-32**

As stated in the final Office Action, Yee fails to disclose the claimed ratio of casein to whey (*i.e.*, about 50:50 to about 75:25 or about 1:1 to about 3:1). Yee only discloses a ratio of casein to whey between 16:1 and 4:1. There is also no motivation to modify Yee as proposed to form the claimed ratio of casein to whey (*i.e.*, higher amounts of whey) because Yee is deficient technically and specifically discloses that cheese with increasing levels of whey result in unacceptable properties. The final Office Action fails to address the lack of motivation to modify Yee; as such, it is summarized further in this response.

**A. Yee is Limited to Casein to Whey Ratios between 16:1 and 4:1**

As discussed in the Applicants' previous response dated October 12, 2006, the process of Yee is technically incapable of producing a cheese with higher levels of whey protein—the process of Yee is technically limited to the ratio of casein to whey in the starting milk, which is only 4:1. The Office Action ignored these technical deficiencies by merely suggesting "Yee et al teach a modification of the protein ratios." (January 3, 2007 Office Action, pg. 3.) However, just because Yee discloses a range of

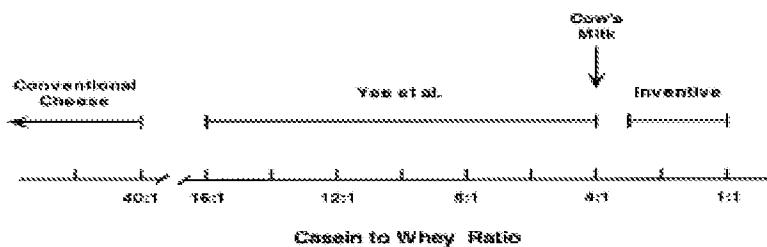
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casein to whey ratios does not mean this references also discloses ratios outside of this range. In particular, Yee does not disclose any procedures to obtain a lower ratio (*i.e.*, higher amounts of whey) in cheese beyond the casein to whey ratio of milk.

As summarized in the Applicants' prior response, the graphical representation below illustrates the various casein to whey ratios of conventional cheese (*i.e.*, 150:1 to 40:1), the cheese of Yee (*i.e.*, 16:1 to 4:1), a typical cow's milk (*i.e.*, 4:1), and the inventive cheese (*i.e.*, about 1:1 to about 3:1).



Yee is technically incapable of producing ratios of casein to whey in the inventive range of the graph above. The process of Yee utilizes ultrafiltration to retain whey proteins and casein proteins as naturally occurring in milk. As specified by Yee, "[m]ilk has a whey proteins [sic] to casein ratio of about 1:4." (Col. 1, lines 14-15.) As is known, milk subjected to ultrafiltration will concentrate both whey proteins and casein proteins; however, the ratio of whey proteins to casein proteins does not change as a result of the ultrafiltration process. As Yee explains, "[t]he selective concentration of milk results in the formation of a retentate that contains both casein and whey proteins, in the same ratio as in the milk." (Col. 1, lines 32-35.) Because Yee uses ultrafiltration to retain whey and casein from milk, the ratio of casein proteins to whey proteins in the resultant cheese of Yee can never be higher than the natural ratio of

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milk in a cheese product (*i.e.*, 4:1). The Office Action fails to address these technical deficiencies of Yee.

**B. Yee States Cheeses with Higher levels of Whey are Unacceptable**

In addition to Yee's technical limitations, Yee also specifically discloses that increasing the amount of whey in cheese results in problems that become increasing more problematic as the level of whey increases. In particular, Yee states:

One of the well know problems with cheese made by ultrafiltration, and hence containing high levels of whey proteins, is the poor melt properties of the cheese. On page 78, the Qvist document states, "It is an unfortunate fact that cheese made from UF-concentrated milk has impaired stretching and melting properties compared to traditional cheese . . . . the difference becoming progressively larger as the degree of concentration is increased."

(Col. 3, lines 45-52.) (Emphasis added.) Yee specifically acknowledges that cheese with increased levels of whey have unacceptable properties. As a result, not only does Yee fail to disclose a method of producing a cheese with increased levels of whey, Yee also teaches away from such modification. The Office Action also fails to address Yee's specific acknowledgement that higher levels of whey in cheese result in unacceptable properties.

**C. There is No Motivation to Modify Yee as Proposed**

As noted above, Yee only discloses a ratio of casein to whey as low as 4:1, specifically discloses a process technically incapable of producing a lower ratio (*i.e.*, high amounts of whey), and expressly recognizes problems with increasing the whey

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content of cheese. In light of these deficiencies, the Office Action has provided no basis that it would have been obvious from the disclosure of Yee to increase the levels of whey beyond what is specifically disclosed by the reference (*i.e.*, a casein to whey ratio between 16:1 and 4:1).

The Manual of Patent Examining Procedure in section 2143.01 indicates that the mere fact that references can be modified does not render the resultant modification obvious unless the prior art also suggests the desirability of the modification. Just because Yee discloses a certain range of casein and whey (*i.e.*, 16:1 to 4:1) does not mean it also discloses values outside that range without motivation to do so. In this case, that motivation is lacking because Yee fails to suggest the desirability of the modification due to Yee's technical shortcomings, and perhaps even more importantly, Yee specifically discloses that increased levels of whey results in cheese having unacceptable properties.

#### D. Unexpected Results

The Office Action suggests the Applicants need to provide evidence of unexpected results. However, because the Office Action has not provided a *prima facie* case of obviousness using the Yee reference as discussed above, the Applicants are not required to provide such evidence. Nevertheless, Applicants further point out that at least in Examples 1 and 2 of Applicants' specification (pages 14-15), the unexpected results are described showing how exemplary forms of the claimed process cheese exhibit improved firmness and softening point even with a ratio of casein to whey below 3:1. Control samples exhibited unacceptable firmness and softening point.

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Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections to claims 1-7 and 27-32 based on Yee.

**II. New Claims 33-42**

Independent claim 33 is similar to original claim 1, but further defines the casein and whey protein as a homogenized emulsion. Support for this amendment can be found in Applicants' specification on at least page 10, lines 7-18. Yee specifically teaches away from a process cheese that includes casein and whey protein in the form of a homogenized emulsion. To the contrary, Yee discloses a cheese that must be subject to low shear mixing and specifically states that detrimental results are obtained when Yee's cheeses are subject to high shear mixing. For example, it is stated that the results of Example 2 in Yee "clearly demonstrate the detrimental impact of high shear . . . on melt performance." (Col. 14, lines 44-46.) As a result, Yee does not disclose its casein and whey in the form of a homogenized emulsion, and it also teaches away from such form of the dairy proteins.

Independent claim 38 is also similar to original claim 1, but further defines at least one of the casein or the whey protein as being a modified dairy protein. Support for this amendment can be found in Applicants' specification on at least page 11, line 21 to page 12, line 5. There is also no disclosure in Yee of its protein being a modified dairy protein, or a disclosure of the specific forms of the modified proteins in dependent claims 39-42. Yee only discloses cheeses produced from ultra-filtration of dairy milk and does not disclose the use of modified dairy proteins.

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**III. Conclusion**

Reconsideration and allowance of claims 1-7 and 27-42 are respectfully requested.

The Commissioner is hereby authorized to charge any additional fees which may be required with respect to this communication, or credit any overpayment, to Deposit Account No. 06-1135.

Respectfully submitted,  
FITCH, EVEN, TABIN & FLANNERY

Dated: March 26, 2007

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